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| LEE, PING | |

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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*Ex parte* RAFAEL MEEUSEN

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Appeal 2009-004842
Application 10/535,060
Technology Center 2600

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Decided: March 3, 2010

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Before JOSEPH F. RUGGIERO, ROBERT E. NAPPI, and
CARL W. WHITEHEAD, JR., *Administrative Patent Judges*.

WHITEHEAD, JR., *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134 from the Examiner's rejection of claims 1-10. App. Br. 3. We have jurisdiction under 35 U.S.C. § 6(b) (2002). We affirm-in-part.

## STATEMENT OF THE CASE

Appellant invented an audio receiver for receiving a frequency modulated stereo multiplex signal wherein the signal may be double side band with suppressed carrier (DSB-SC) modulated on a 38 kHz carrier, with a 19 kHz pilot tone in the multiplex signal used to reconstruct the carrier's phase and frequency for demodulation. The analog stereo multiplex signal is converted into a time discrete digital stereo multiplex signal and shifted over a frequency of 19 kHz to extract at least one of the time discrete digital stereo sum and time discrete digital stereo difference signals.[1]

Claim 1, which further illustrates the invention, follows:

1. Method for a receiver having a signal path incorporating a tuner, a frequency demodulator circuit for supplying an analog stereo multiplex signal comprising a baseband stereo sum signal, a 19 kHz stereo pilot and a stereo difference signal, which is double sideband amplitude-modulated on a suppressed 38 kHz subcarrier, a sampler for converting the analog stereo multiplex signal into a time discrete digital stereo multiplex signal and a stereo decoder for decoding the time discrete digital stereo multiplex signal into a time-discrete digital stereo sum and a time discrete digital stereo difference signal, wherein the analog stereo multiplex signal is converted

[1] *See* App. Br. 3-4.

into a time discrete digital stereo multiplex signal and then the time discrete digital stereo multiplex signal is shifted over a frequency of 19 kHz to extract at least one of the time-discrete digital stereo sum and the time discrete digital stereo difference signal.

*The Rejections*[2]

The Examiner relies upon the following prior art references as evidence of unpatentability:

| | | |
|---|---|---|
| Therssen | EP 0512606 B1 | Jul. 17, 1996 |
| Wildhagen | US 7,149,312 B1 | Dec. 12, 2006 (filed Oct. 18, 2000) |

Claim 1 stands rejected under 35 U.S.C. § 102(b) as being unpatentable over Therssen (Ans. 5-6).

Claims 1-10 stand rejected under 35 U.S.C. § 102(b) as being unpatentable over Wildhagen (Ans. 3-5).

Rather than repeat the arguments of Appellant or the Examiner, we refer to the Appeal Brief (filed May 13, 2008), the Reply Brief (filed September 16, 2008), and the Answer (mailed July 29, 2008) for their respective details. In this decision, we have considered only those arguments actually made by Appellant. Arguments which Appellant could have made but did not make in the Brief have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2008).

[2] The Examiner has withdrawn the rejection of claim 4 under 35 U.S.C. § 102(b) as anticipated by Therssen (Ans. 2).

*Anticipation Rejection over Therssen*

*Claim 1*

ISSUE

Does Therssen discloses a method for a receiver to shift a time discrete digital stereo multiplex signal over a frequency of 19 kHz to extract at least one of the time discrete digital stereo sum and time discrete digital stereo difference signals?

FINDINGS OF FACTS

1. Figure 1 of Therssen is reproduced below:

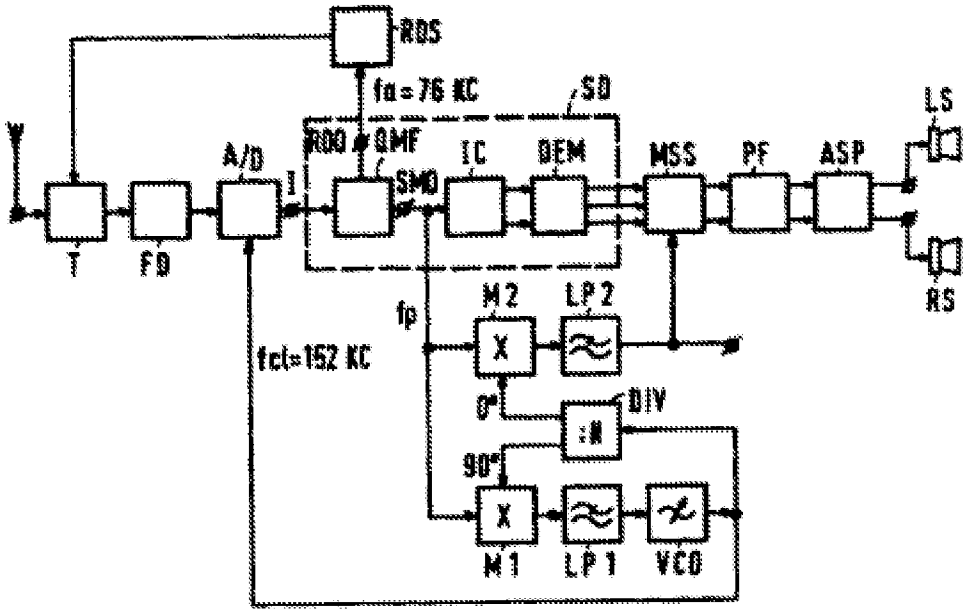


FIG. 1

Figure 1 discloses a receiver for receiving radio frequency (RF) FM reception signals comprising a baseband modulation signal which is FM-modulated on an RF carrier (col. 4, l. 22 – col. 5, l. 1).

2. The second multiplier stage M2 applies a control signal to the mono-stereo selector MSS via a second low-pass filter LP2 for an automatic mono-

stereo change-over controlled by the received 19 kHz stereo pilot (col. 6, l. 56 – col. 7, l. 2).

3. Therssen discloses a receiver having a signal path incorporating a tuner, a demodulator circuit for supplying a stereo multiplex signal comprising a base-band stereo sum signal (L+R), a 19 kHz stereo pilot and a stereo difference signal (L-R) which is double side-band amplitude-modulated on a suppressed 38 kHz subcarrier, a sampler for converting an analog signal into a time-discrete signal, and a stereo decoder for time-division multiplex decoding of a time-discrete stereo multiplex signal into time-discrete left and right stereo signals (col. 2, ll. 2-12).

## PRINCIPLES OF LAW

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros., Inc. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987).

Although giving claims their broadest reasonable interpretation must take into account any definitions given in the specification, *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997), it is improper to read into the claims limitations from examples given in the specification. *In re Zletz*, 893 F.2d 319, 321-22 (Fed. Cir. 1989). *See also Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) ("[A]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments. In particular, we have expressly rejected the contention that if a patent describes only a single

embodiment, the claims of the patent must be construed as being limited to that embodiment" (citations omitted)).

## ANALYSIS

Appellant argues that the multiplier (M2) does not shift the time discrete stereo multiplex signal over a frequency of 19 kHz to extract at least one of the time discrete digital stereo sum or difference signals as the claimed method does (App. Br. 9). *See* FF 1-2. Appellant further argues:

> [I]n the present invention, extraction of the sum or difference signal is accomplished by means of the frequency shift of 19kHz. In Therssen, extraction of the sum or difference signal (IC1 or IC2) is accomplished as illustrated in Fig. 2 thereof by the circuits QMF (time-discrete halfband lowpass filter) and IC (interpolation circuit). This extraction occurs regardless of the operation of M2. The only effect of M2 is to influence whether a mono or stereo output is finally output.

(App. Br. 9).

It is the Examiner's position that the "mono in Therssen is the stereo sum signal" which is extracted after the MSS (mono-stereo selector) wherein the MSS is controlled by the 19 kHz signal generated the DIV (frequency dividing circuit) (Ans. 7). *See* FF 1. The Examiner concludes:

> The term "shifting", according to dictionary, means varying. So the claimed "frequency shifting" could read on the frequency of the input signal being varied that the output has a varied frequency. This varied frequency is different from the input frequency. The signal after DIV is 19 kHz which is generated by varying the input frequency on the signal SMO. The stereo sum signal is extracted by varying the SMO over a frequency of 19 kHz.

(Ans. 7-8).

In response to the Examiner's conclusion, Appellant argues:

> Appellants [sic] reply to the Examiner's Answer that we maintain that Therssen fails to disclose or s [sic] render obvious the shifting of a time discrete stereo multiplex signal over a frequency of 19 kHz to extract at least one time-discrete signal. Therssen discloses the use of QMF circuits (time-discrete halfband low pass filter shown in FIG. 2) and the interpolation circuit. The block M2 does not shift the time discrete digital signal over a frequency of 19 kHz. Appellants [sic], for the reasons noted previously herein, take at [sic] strong exception to the Examiner's strained interpretation of frequency shifting used in support of the rejection of claim 1 in the Examiner's Answer.

(Reply Br. 7).

We find Appellant's argument that M2 does not shift the time discrete digital stereo multiplex signal over 19 kHz to be persuasive. *See* FF 1-3. Controlling the mono stereo switch MSS is not the same as shifting the signal over a 19 kHz frequency as required by claim 1. Frequency shifting itself can be reasonably interpreted broadly; however, claim 1 specifically requires that the *multiplex signal is shifted over a frequency of 19 kHz*, therefore a mere frequency change is not sufficient to anticipate the claim limitation. Finally, the Examiner has failed to properly indicate where Therssen discloses a frequency shifting of the time discrete stereo multiplex signal of any kind, much less frequency shifting the multiplex signal over a 19 kHz frequency as required in claim 1. *See* FF 1, 3. Therefore, we will not sustain the Examiner's rejection of claim 1 over Therssen.

*Anticipation Rejection over Wildhagen*

*Claims 1-4*

ISSUE

Does Wildhagen disclose a method for a receiver to shift a time discrete digital stereo multiplex signal over a frequency of 19 kHz to extract at least one of the time discrete digital stereo sum and time discrete digital stereo difference signals?

FINDING OF FACTS

4. Figure 5 of Wildhagen is reproduced below:

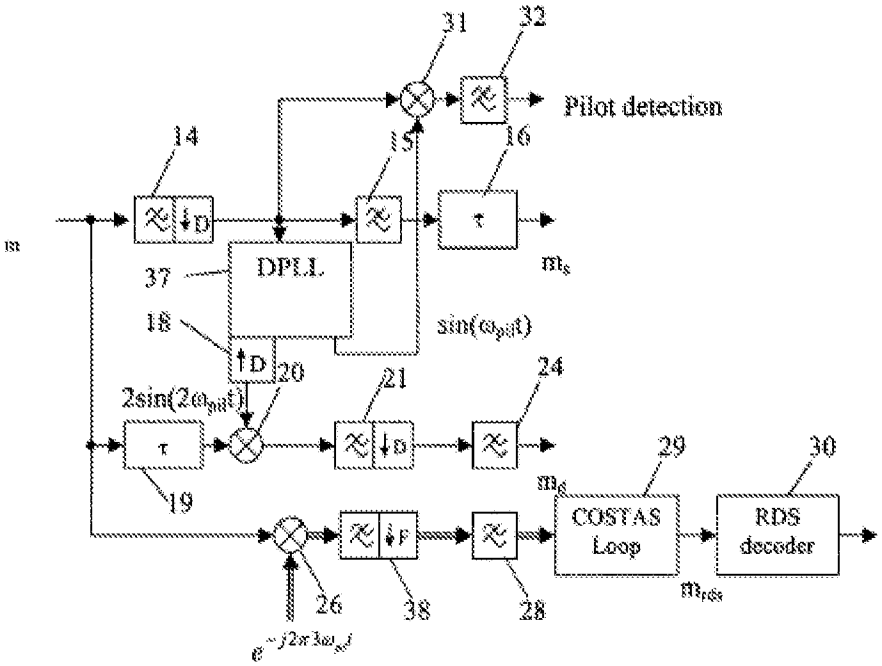


Figure 5 discloses stereo-sum signal $m_s(t)$, the stereo-difference signal $m_d(t)$ and the pilot detection signal $m_h(t)$ are generated from the multiplex signal m(t) (col. 4, ll. 22-65).

ANALYSIS

Appellant argues:

> With respect to Wildhagen, Figure 5 thereof, the rejection erroneously contends that "the time discrete digital stereo multiplex signal [m] is shifted over a frequency of 19kHz (37) to extract at least one of the time-discrete sum and the time discrete digital stereo difference signal (through 20, 21, 24) and further shifted (by 18) and having a lowpass filter (21 or 24)."
>
> The block 37 is a digital phase lock loop, and the block 18 is an up-sampling circuit. As described at col. 4, lines 42-45, "The DPLL-circuit 37 [and 18] generates a carrier for the coherent amplitude demodulation of the stereo-difference signal $m_d(t)$ and a carrier for the coherent pilot carrier detection, i.e., the detection of a stereo transmitter."

(App. Br. 10 (brackets in original)).

The Examiner states that Appellant has failed to explain the terminology *frequency shifting*, and therefore the term is subject to broad interpretation. *See* Ans. 6. As we stated previously, the frequency shifting terminology can be reasonably interpreted broadly; however, claim 1 specifically requires that the *multiplex signal is shifted over a frequency of 19 kHz*, therefore a mere frequency change is not sufficient to anticipate the claim limitation. Even if we agreed with the Examiner that the output of the digital phase locked loop circuit (DPLL) has a frequency of 19 kHz, claim 1 require that the multiplex signal is shifted over a frequency of 19 kHz and, while the DPLL generates three carriers (38 kHz carrier for the coherent amplitude demodulation of the stereo-difference signal md(t), a complex 19 kHz carrier for the coherent pilot detection, and the in quadrature component of the 19 kHz carrier which is required for synchronization purposes), none of the generated carriers are disclosed to have been shifted by 19 kHz as required in claim 1. *See* Wildhagen, col. 4, ll. 42-54; FF 4. *See also* Ans. 7. Therefore, Wildhagen's DPLL circuit does not shift the time discrete digital stereo multiplex signal as required in the method of claim 1. We find

Appellant's arguments persuasive and we will not sustain the Examiner's rejection of claim 1 and dependent claims 2-4 for the same reason we have stated previously.

*Claims 5-8*

ISSUE

Does Wildhagen disclose a receiver for decoding a time discrete digital stereo multiplex signal wherein the receiver has a stereo decoder comprising two frequency shifting circuits connected in series?

ANALYSIS

Appellant argues that, based upon the fact that Wildhagen's DPLL circuit fails to perform any frequency shifting of the time discrete digital stereo multiplex signal m, it may be seen that Wildhagen does not anticipate claim 5 (App. Br. 10). Appellant further argues that the DPLL derives a first time reference signal from the time discrete digital stereo multiplex signal and a second time reference signal from the first time reference signal. *Id.*

However, claim 5 does not require frequency shifting the time discrete digital multiplex signal. In fact, claim 5 only requires a stereo decoder for decoding the time discrete digital multiplex signal and, while the claim further states that the stereo decoder comprises two frequency shifting circuits connected in series, the claim does not require that the multiplex signal be shifted by the two frequency shifting circuits. It is the Examiner's position that Wildhagen discloses two frequency shifting circuits 20, 37 and Appellant not presented arguments to the contrary. Therefore we will

sustain the Examiner's rejection of independent claim 5 as well as dependent claims 6-8 since they were not argued separately.

*Claims 9-10*

ANALYSIS

Appellant argues:

> With respect to claim 9, the DPLL circuit of Wildhagen cannot be considered to be "two *frequency shifting* circuits connected in series with one another." As made clear in the present specification, a frequency shifting circuit is used to shift the center frequency of an information-bearing signal (not a carrier signal or reference signal). Accordingly, it may be seen that Wildhagen does not anticipate claim 9.

(App. Br. 10).

Appellant does not indicate what section of the Specification that he is relying upon for support of his assertion that the frequency shifting circuit is used only to shift the center frequency of an information bearing signal. Further, the Examiner does not rely upon the DPLL circuit 37 alone to show two frequency shifting circuits connected in series with one another; the Examiner relies upon the DPLL circuit 37 in conjunction with the first mixer 20. *See* Ans. 3; FF 4. We do not find Appellant's arguments to be persuasive. Therefore, we will sustain the Examiner's rejection of claim 9 and dependent claim 10 for the same reasons since claim 10 was not argued separately. *See* App. Br. 10.

CONCLUSIONS

Therssen does not disclose a method for a receiver to shift a time discrete digital stereo multiplex signal over a frequency of 19 kHz to extract

at least one of the time discrete digital stereo sum and time discrete digital stereo difference signals.

Wildhagen does not disclose a method for a receiver to shift a time discrete digital stereo multiplex signal over a frequency of 19 kHz to extract at least one of the time discrete digital stereo sum and time discrete digital stereo difference signals.

Wildhagen discloses a receiver for decoding a time discrete digital stereo multiplex signal wherein the receiver has a stereo decoder comprising two frequency shifting circuits connected in series.

## ORDER

We will not sustain the Examiner's decision rejecting claims 1-4. We will sustain the Examiner's decision rejecting claims 5-10.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART

babc

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